The Flasher Manager Benchmarks

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Abstract

This technical report provides all the source code of the *Flasher Manager* as well as of the test programs. The *Flasher Manager* is an industrial application from a car manufacturer that is embedded as a C program in a car computer. The benchmarks are based on four safety properties specified by the *Flasher Manager* designers.

1 The *Flasher Manager* application

The *Flasher Manager* application [1] is a real time industrial application from a car manufacturer that was provided by `Geensoft / Dassault Systems`[1]. The *Flasher Manager* application was designed and simulated using the *Simulink* platform. Its specification was given by Geensoft and consists of four main properties. The *Flasher Manager* is concretely embedded as a C program in a car computer. This application is challenging for software verification: its complexity comes from the size of the C function generated from the *Simulink* module and from the number of clock cycles required for verifying each property. These benchmarks have been used to compare the performances of different bounded model-checkers and solvers [1].

2 The *Flasher Manager* Benchmarks

The following files are provided:

- `f1.c`: C code of the *Flasher Manager* module (function `f1`)
- `p1.c`: C code for checking property 1
- `p2.c`: C code for checking property 2
- `p3a.c`: C code for checking property 3a
- `p3b.c`: C code for checking property 3b
- `p4.c`: C code for checking property 4

[1] See `http://www.geensoft.com/en`

- `simulink1.pdf`: an overview of the *Flasher Manager Simulink* circuit
- `simulink2.pdf`: a detailed view of the *Flasher Manager Simulink* circuit

References

[1] H. Collavizza, L. V. Nguyen, O. Ponsini, M. Rueher and A. Rollet. *Constraint-Based BMC: A Backjumping Strategy*. To appear in International Journal on Software Tools for Technology Transfer (STTT). `http://hal.archives-ouvertes.fr/hal-00635417`